3. Energy dissipators shall be installed when necessary at discharge points, where diversions intersect with natural streams and exit velocity of the diversion ditch flow is greater than that of the receiving stream;

4. Excess excavated material not necessary for diversion channel geometry or regrading of the channel shall be disposed of in accordance with 10 CSR 40-3.060;

5. Topsoil shall be handled in compliance with 10 CSR 40-3.030; and

6. Diversions shall not be constructed or operated to divert water into underground mines; and

(G) All diversions shall be designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public.

(4) Stream Channel Diversions.

(A) Flow from perennial and intermittent streams within the permit area may be diverted if the diversions—

1. Are approved in the permit and plan if the requirements in subsection (17)(A) of this rule are found;

2. Comply with other requirements of this chapter and 10 CSR 40-4; and

3. Comply with local, state and federal statutes and regulations.

(B) When streamflow is allowed to be diverted, the stream channel diversion shall be designed, constructed and removed in accordance with the following:

1. The longitudinal profile of the stream, the channel and the floodplain shall be designed and constructed to remain stable and to prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow or to runoff outside the permit area. These contributions shall not be in excess of requirements of state or federal law. Erosion control structures such as channel lining structures shall be used in diversions only when approved in the permit and plan as being necessary to control erosion. These structures shall be approved for permanent diversions only where they are stable and will require infrequent maintenance;

2. The combination of channel, bank and floodplain configurations shall be adequate to safely pass the peak runoff of a ten (10)-year, twenty-four (24)-hour precipitation event for temporary diversions, a one hundred (100)-year, twenty-four (24)-hour precipitation event for permanent diversions or larger events required in the permit and plan. However, the capacity of the channel itself should be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream of the diversion; and

3. The design and construction of all stream channel diversions of perennial and intermittent streams shall be certified by a qualified registered professional engineer as meeting the performance standards of this rule.

(C) When no longer needed to achieve the purpose for which they were authorized, all temporary stream channel diversions shall be removed and the affected land regraded and revegetated, in accordance with 10 CSR 40-3.030(4) and (5), 10 CSR 40-3.110 and 10 CSR 40-3.120. At the time diversions are removed, downstream water treatment facilities previously protected by the diversion shall be modified or removed to prevent overtopping or failure of the facilities. This requirement shall not relieve the person who conducts the surface mining activities from maintenance of a water treatment facility otherwise required under this chapter or the permit.

(D) When permanent diversions are constructed or stream channels restored, after temporary diversions, the operator shall—

1. Restore, enhance where practicable or maintain natural riparian vegetation on the banks of the stream;

2. Establish or restore the stream to its natural meandering shape of an environmentally acceptable gradient, as determined in the permit and plan; and

3. Establish or restore the stream to a longitudinal profile and cross-section, including aquatic habitats (usually a pattern of riffles, pools and drops rather than uniform depth) that approximate premining stream channel characteristics.

(5) Sediment Control Measures.

(A) Appropriate sediment control measures shall be designed, constructed and maintained using the best technology currently available to—

1. Prevent, to the extent possible, additional contributions of sediment to streamflow or to runoff outside the permit area;

2. Meet the more stringent of applicable state or federal effluent limitations; and

3. Minimize erosion to the extent possible.

(B) Sediment control measures include practices carried out within and adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed area shall reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include:

1. Disturbing the smallest practicable area at any one time during the mining operation through progressive backfilling, grading and prompt revegetation as required in 10 CSR 40-3.120(1)(B);

2. Stabilizing the backfill material to promote a reduction in the rate and volume of runoff, in accordance with the requirements of 10 CSR 40-3.110(1);

3. Retaining sediment within disturbed areas;

4. Diverting runoff away from disturbed areas;

5. Diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion;

6. Using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds and other measures that reduce overland flow velocity, reduce runoff volume or trap sediment; and

7. Treating with chemicals.

(6) Sedimentation Ponds.

(A) General Requirements. Sedimentation ponds shall be used individually or in series and shall—

1. Be constructed before any disturbance of the undisturbed area to be drained into the pond;

2. Be located as near as possible to the disturbed area and out of perennial streams, unless approved in the permit and plan; and

3. Meet all the criteria of this section.

(B) Sediment Storage Volume. Sedimentation ponds shall provide adequate sediment storage volume.

(C) Detention Time. Sedimentation ponds shall provide the required theoretical detention time for the water inflow or runoff entering the pond from a ten (10)-year, twenty-four (24)-hour precipitation event (design event).

(D) Dewatering. The water storage resulting from inflow shall be removed by a nonclogging dewatering device that has been designed, constructed and maintained in accordance with subsection (6)(C) of this rule or a conduit spillway approved in the permit and plan. The dewatering device shall not be located at a lower elevation than the maximum elevation of the sedimentation storage volume.

(E) Each person who conducts surface mining activities shall design, construct and maintain sedimentation ponds to prevent short-circuiting to the extent possible.

(F) The design, construction and maintenance of a sedimentation pond or other sediment control measures in accordance with this section shall not relieve the person from compliance with applicable effluent limitations as contained in section (2) of this rule.

(G) There shall be no outflow through the emergency spillway during the passage of the runoff resulting from the ten (10)-year, twenty-four (24)-hour precipitation event or lesser events through the sedimentation pond.

(H) Sediment ponds shall be designed, constructed and maintained, to provide periodic sediment removal sufficient to maintain adequate volume for the design event.

(I) An appropriate combination of principal and emergency spillways shall be provided to safely discharge the runoff from a twenty-five (25)-year, twenty-four (24)-hour precipitation event or larger event required in the permit and plan. The elevation of the crest of the emergency spillway shall be a minimum of one foot (1′) above the crest of the principal spillway. Emergency spillway grades and allowable velocities shall be approved in the permit and plan.

(J) The minimum elevation at the top of the settled embankment shall be one foot (1′) above the water surface in the pond with the emergency spillway flowing at design depth. For embankments subject to settlement, this one foot (1′) minimum elevation requirement shall apply at all times, including the period after settlement.

(K) The constructed height of the dam shall be increased a minimum of five percent (5%) over the design height to allow for settlement, unless it has been demonstrated in the permit and plan that the material used and the design will ensure against all settlement.

(L) The minimum top width of the embankment shall not be less than the quotient of (H+35)/5, where H is the height, in feet, of the embankment as measured from the upstream toe of the embankment.

(M) The combined upstream and downstream side slopes of the settled embankment shall not be less than 1v:5h (20%), with neither slope steeper than 1v:2h (50%). Slopes shall be designed to be stable in all cases, even if flatter side slopes are required.

(N) The embankment foundation area shall be cleared of all organic matter, all surfaces sloped to no steeper than 1v:1h (100%) and the entire foundation surface scarified.

(O) The fill material shall be free of sod, large roots, other large vegetative matter and frozen soil, and in no case shall coal-processing waste be used.

(P) The placing and spreading of fill material shall be started at the lowest part of the foundation. The fill shall be brought up in horizontal layers of a thickness as is required to facilitate compaction and meet the design requirements of this section. Compaction shall be conducted as specified in the design approved in the permit and plan.

(Q) If a sedimentation pond has an embankment that is more than twenty feet (20′) in height, as measured from the upstream toe of the embankment to the crest of the open channel emergency spillway, unless the emergency spillway is a pipe, where it is measured to the lowest point in the toe of the embankment, or has both an embankment that is five feet (5′) or more in height, as measured from the upstream toe of the embankment to the crest of the open channel emergency spillway and a storage volume of twenty (20) acre-feet or more above the upstream toe of the embankment, the following additional requirements shall be met:

1. An appropriate combination of principal and emergency spillways shall be provided to discharge safely the runoff resulting from a one hundred (100)-year, twenty-four (24)-hour precipitation event or a larger event required in the permit and plan;

2. The embankment shall be designed and constructed with a static safety factor of at least one and five-tenths (1.5) or a higher safety factor as required in the permit and plan to ensure stability;

3. Appropriate barriers shall be provided to control seepage along conduits that extend through the embankment; and

4. The criteria of the Mine Safety and Health Administration (MSHA) as published in 30 CFR 77.216 shall be met.

(R) Each pond shall be designed and inspected during construction under the supervision of, and certified after construction by, a registered professional engineer.

(S) The entire embankment including the surrounding areas disturbed by construction shall be stabilized with respect to erosion by a vegetative cover or other means immediately after the embankment is completed. The active upstream face of the embankment where water will be impounded may be riprapped or otherwise stabilized. Areas in which the vegetation is not successful or where rills and gullies develop shall be repaired and revegetated in accordance with 10 CSR 40-3.110(6).

(T) Impoundments which do not meet the criteria of 30 CFR 77.216(a) shall be examined at least quarterly by a qualified person designated by the operator for appearance of structural weakness and other hazardous conditions.

(U) Sedimentation ponds shall not be removed until removal is authorized and until the disturbed area has been restored and the vegetation requirements of 10 CSR 40-3.120 are met and the drainage entering the pond has met the applicable state and federal water quality requirements for the receiving stream. In no case shall the structure be removed sooner than two (2) years after the last augmented seeding. When the sedimentation pond is removed, the affected land shall be regraded and revegetated in accordance with 10 CSR 40-3.110 and 10 CSR 40-3.120, unless the pond has been approved in the permit and plan for retention as being compatible with the approved postmining land use under 10 CSR 40-3.130. If approved in the permit and plan, the sedimentation pond shall meet all the requirements for permanent impoundments of sections (10) and (17).

(7) Other Treatment Facilities.

(A) Other treatment facilities shall be designed to treat the ten (10)-year, twenty-four (24)-hour precipitation event unless a lesser design event is approved by the director based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of 30 CFR 816.42 will be met.

(B) Other treatment facilities shall be designed in accordance with the applicable requirements of section (6) of this rule.

(8) Discharge Structures. Discharge from sedimentation ponds, permanent and temporary impoundments, coal processing waste dams and embankments and diversions shall be controlled by energy dissipators, riprap channels and other devices, where necessary, to reduce erosion, to prevent deepening or enlargement of stream channels and to minimize disturbance of the hydrologic balance. Discharge structures shall be designed according to standard engineering design procedures.

(9) Acid- and Toxic-Forming Materials. Drainage from acid- and toxic-forming materials into ground and surface water shall be avoided by—

(A) Identifying and burying or treating, or both, when necessary, materials which may adversely affect water quality or be detrimental to vegetation or to public health and safety if not buried or treated, or both;

(B) Preventing water from coming into contact with acid- and toxic-forming materials in accordance with 10 CSR 40-3.110(3) and other measures as required in the permit and plan; and

(C) Burying or otherwise treating all acid- or toxic-forming materials within thirty (30) days after it is first exposed on the mine site, or within a lesser period required in the permit and plan. Temporary storage of the materials may be approved in the permit and plan upon a finding that burial or treatment within thirty (30) days is not feasible and will not result in any materials risk of water pollution or other environmental damage. Storage shall be limited to the period until burial or treatment, or both, first becomes feasible. Acid- or

toxic-forming materials to be stored shall be placed on impermeable material and protected from erosion and contact with surface water.

(10) Permanent and Temporary Impoundment.

(A) Impoundments meeting the criteria of 30 CFR 77.216(a) shall comply with the requirements of 30 CFR 77.216. The plan required to be submitted to the district manager of the MSHA under 30 CFR 77.216 shall also be submitted to the director as part of the permit application.

(B) Permanent impoundments are prohibited unless authorized in the permit and plan upon the basis of the following demonstration:

1. The quality of the impounded water shall be suitable on a permanent basis for its intended use and discharge of water from the impoundment shall not degrade the quality of receiving waters to less than the water quality standards established pursuant to applicable state and federal laws;

2. The level of water shall be sufficiently stable to support the intended use;

3. Adequate safety and access to the impounded water shall be provided for proposed water users;

4. Water impoundments shall not result in the diminution of the quality or quantity of water used by adjacent or surrounding landowners for agricultural, industrial, recreational or domestic uses;

5. The design, construction and maintenance of structures shall achieve the minimum design requirements applicable to structures constructed and maintained under the Watershed Protection and Flood Prevention Act, P. L. 83-566 (U.S.C. 1006). Requirements for impoundments that meet the size or other criteria of the MSHA, 30 CFR 77.216(a) are contained in United States Soil Conservation Service Technical Release No. 60, *Earth Dams and Reservoirs*, June 1976. Requirements for impoundments that do not meet the size or other criteria contained in 30 CFR 77.216(a) are contained in United States Soil Conservation Service Practice Standards 378, *Ponds*, January 1991. The technical release and practice standard are incorporated by reference as they exist on the date of adoption of this chapter;

6. The size of the impoundment is adequate for its intended purposes; and

7. The impoundment will be suitable for the approved postmining land use.

(C) Temporary impoundments of water in which the water is impounded by a dam shall meet the requirements of subsections (6)(F)—(V) of this rule.

(D) Excavations that will impound water during or after the mining operation shall have perimeter slopes that are stable and shall not be steeper than 1v:2h (50%). Where surface runoff enters the impoundment area, the side slope shall be protected against erosion.

(E) Slope protection shall be provided to minimize surface erosion at the site and protect against sudden drawdown. Sediment control measures shall be required where necessary to reduce the sediment leaving the site.

(F) All embankments of temporary and permanent impoundments and the surrounding areas and diversion ditches disturbed or created by construction, shall be graded, fertilized, seeded and mulched to comply with the requirements of 10 CSR 40-3.120 immediately after the embankment is completed, provided that the active, upstream face of the embankment where water will be impounded may be riprapped or otherwise stabilized. Areas in which the vegetation is not successful or where rills and gullies develop shall be repaired and revegetated to comply with the requirements of 10 CSR 40-3.110(6) and 10 CSR 40-3.120.

(G) All dams and embankments shall be routinely inspected by a qualified registered professional engineer or by someone under the supervision of a qualified registered professional engineer. The professional engineer or specialist shall be experienced in the design and construction of impoundments. Inspections shall be made regularly during construction, upon completion of construction and at least yearly until removal of the structure or release of the performance bond.

(H) All dams and embankments shall be routinely maintained during the mining operations. Vegetative growth shall be cut where necessary to facilitate inspection and repairs. Ditches and spillways shall be cleaned. Any combustible material present on the surface, other than material such as mulch or dry vegetation used for surface stability, shall be removed and all other appropriate maintenance procedures followed.

(I) All dams and embankments subject to 10 CSR 40 shall be certified by a qualified registered professional engineer during construction immediately after construction and annually after that as having been constructed, maintained, or both, to comply with the requirements of 10 CSR 40. All coal-processing waste dams and embankments covered by 10 CSR 40-3.080(9)—(11) shall be certified by a qualified registered professional engineer. Certification reports shall be provided certifying that the impoundment has been constructed and maintained as designed and in accordance with the approved plan and this chapter, shall include a discussion on any appearance of instability, structural weakness or other hazardous condition and shall include statements on:

1. Existing and required monitoring procedures and instrumentation;

2. The design depth and elevation of any impounded waters at the time of the initial certification report or the average and maximum depth and elevations of any impounded waters over the past year for the annual certification reports;

3. Existing storage capacity of the dam or embankment;

4. Any fires occurring in the construction material up to the date of the initial certification or over the past year for the annual certification reports; and

5. Any other aspects of the dam or embankment affecting stability, including structural weakness, erosion and other hazardous conditions.

(J) If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment shall promptly inform the director of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the director shall be notified immediately. The director shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

(K) Plans for any enlargement, reduction in size, reconstruction or other modification of dams or impoundments shall be submitted to the director and shall comply with the requirements of this section. Except where a modification is required to eliminate an emergency condition constituting a hazard to public health, safety or the environment, the plans will be approved before modification begins.

(11) Groundwater Protection.

(A) Backfilled materials shall be placed so as to minimize contamination of groundwater systems with acid, toxic or otherwise harmful mine drainage to minimize adverse effects of mining on groundwater systems outside the permit area, and to support approved postmining land uses.

(B) To control the effects of mine drainage, pits, cuts and other mine excavation or disturbances shall be located, designed, constructed and utilized in a manner as to prevent or control discharge of acid, toxic or otherwise harmful mine drainage waters into groundwater systems and to prevent adverse impacts on these groundwater systems or on approved postmining land uses.

(12) Protection of Groundwater Recharge Capacity. Surface mining activities shall be conducted in a manner that facilitates reclamation which will restore approximate premining recharge capacity through restoration of the capability of the reclaimed areas as a whole, excluding coal-processing waste and underground development waste disposal

areas and fills, to transmit water to the groundwater system. The recharge capacity shall be restored to a condition which—

(A) Supports the approved postmining land use;

(B) Minimizes disturbances to the prevailing hydrologic balance in the mine plan area and in adjacent areas; and

(C) Provides a rate of recharge that approximates the premining recharge rate.

(13) Surface Water and Groundwater Monitoring.

(A) Groundwater.

1. Groundwater levels, infiltration rates, subsurface flow and storage characteristics and the quality of groundwater shall be monitored in a manner approved in the permit and plan, to determine the effects of surface mining activities on the recharge capacity of reclaimed lands and on the quantity and quality of water in groundwater systems in the mine plan and adjacent areas.

A. Groundwater monitoring data shall be submitted every three (3) months to the director or more frequently as prescribed by the director. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any groundwater sample indicates noncompliance with the permit conditions, the operator shall promptly notify the director and take remedial measures provided for in 10 CSR 40-6.050(9), 10 CSR 40-6.070(13) and 10 CSR 40-6.120(5).

B. Groundwater monitoring shall proceed through mining and continue during reclamation until bond release. Consistent with the procedures of 10 CSR 40-6.090, the director may modify the monitoring requirements, including the parameters covered and the sampling frequency, if the operator demonstrates, using the monitoring data obtained under this paragraph, that—

(I) The operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses and the water rights of other users have been protected or replaced; or

(II) Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under 10 CSR 40-6.050(9)(C).

2. When surface mining activities may affect the groundwater systems serving as aquifers which significantly ensure the hydrologic balance of water use on or off the mine plan area, groundwater levels and groundwater quality shall be periodically monitored. Monitoring shall include measurements from a sufficient number of wells and mineralogical and chemical analyses of aquifer, overburden and spoil that are adequate to reflect changes in groundwater quantity and quality resulting from those activities. Monitoring shall be adequate to plan for modification of surface mining activities, if necessary, to minimize disturbance of the prevailing hydrologic balance.

3. As specified and approved in the permit and plan, the person who conducts surface mining activities shall conduct additional hydrologic tests, including drilling, infiltration tests and aquifer tests and shall submit the results to the director, to demonstrate compliance with sections (11)—(13) of this rule.

(B) Surface Water.

1. Surface water monitoring shall be conducted in accordance with the monitoring program submitted under 10 CSR 40-6.050(9)(B)4. and approved in the permit and plan. The permit and plan shall set forth the nature of data, frequency of collection and reporting requirements. Monitoring shall—

A. Be adequate to accurately measure and record water quantity and quality of the discharges from the permit area;

B. Be reported when analytical results of the sample collections indicate noncompliance with a permit condition or applicable standard; the person who conducts the surface mining activities shall notify the director within five (5) days. Where a National Pollutant Discharge Elimination System (NPDES) permit effluent limitation noncompliance has occurred, the person who conducts surface mining activities shall forward the analytic results concurrently with the written notice of noncompliance; and

C. Result in quarterly reports to the director, to include analytical results from each sample taken during the quarter. Any sample results which indicate a permit violation will be immediately reported to the director as provided for in 10 CSR 40-6.050(9) and 10 CSR 40-6.120(5). In those cases where the discharge for which water monitoring reports are required is also subject to regulation by an NPDES permit issued under the Clean Water Act of 1977 (30 U.S.C. Sections 1251—1378) and where the permit includes provisions for equivalent reporting requirements and requires filing of water monitoring reports within ninety (90) days or less of sample collection, the following alternative procedure shall be used. The person who conducts the surface mining activities shall submit to the director on the same time schedule as required by the NPDES permit or within ninety (90) days following sample collection, whichever is earlier, either:

(I) A copy of the completed reporting form filed to meet NPDES permit requirements; or

(II) A letter identifying the state or federal government official with whom the reporting form was filed to meet NPDES permit requirements and the date of filing.

2. After disturbed areas have been regraded and stabilized according to this chapter, the person who conducts surface mining activities shall monitor surface water flow and quality. Data from this monitoring may be used to demonstrate that the quality and quantity of runoff without treatment is consistent with the requirements of this chapter to minimize disturbance to the prevailing hydrologic balance and to attain the approved postmining land use. These data may also provide a basis for approval by the commission or director for removal of water quality or flow control systems.

3. Equipment, structures and other devices necessary to accurately measure and sample the quality and quantity of surface water discharges from the disturbed area shall be properly installed, maintained and operated and shall be removed when no longer required.

(14) Transfer of Wells.

(A) An exploratory or monitoring well may only be transferred by the person who conducts surface mining activities for further use as a water well with the prior approval of the commission or director. That person and the surface owner of the lands where the well is located shall jointly submit a written request to the director for that approval.

(B) Upon an approved transfer of a well, the transferee shall—

1. Assume primary liability for damages to persons or property from the well;

2. Plug the well when necessary, but in no case later than abandonment of the well; and

3. Assume primary responsibility for compliance with 10 CSR 40-3.020 with respect to the well.

(C) Upon an approved transfer of a well, the transferor shall be secondarily liable for the transferee's obligations under subsection (13)(B) of this rule, until release of the bond or other equivalent guarantee required by 10 CSR 40-7 for the area in which the well is located.

(15) Water Rights and Replacement. Any person who conducts surface mining activities shall replace the water supply of an owner of interest in real property who obtains all or part of his/her supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source, where the water supply has been affected by contamination, diminution or interruption

proximately resulting from the surface mining activities.

(16) Discharge of Water into an Underground Mine. Surface water shall not be diverted or otherwise discharged into underground mine workings, unless allowed by section 577.155, RSMo and the person who conducts the surface mining activities demonstrates in the permit and plan application that this will—

(A) Abate water pollution or otherwise eliminate public hazards resulting from surface mining activities;

(B) Be discharged as a controlled flow, meeting the effluent limitations of section (2) of this rule for pH and total suspended solids;

(C) Not cause, result in or contribute to, in any event, a violation of applicable water quality standards or effluent limitations by discharging water from underground mines to surface waters;

(D) Minimize disturbance to the hydrologic balance; and

(E) Meet the approval of the MSHA.

(17) Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments and Treatment Facilities. Before abandoning the permit area, the person who conducts the surface mining activities shall renovate all permanent sedimentation ponds, diversions, impoundments and treatment facilities to meet criteria specified in the detailed design plan for the permanent structures and impoundments.

(18) Stream Buffer Zones.

(A) No land within one hundred feet (100′) of a perennial stream or an intermittent stream shall be disturbed by surface mining activities, unless the director specifically authorizes surface mining activities closer to, or through, a perennial stream. The director may authorize these activities only upon finding that—

1. Surface mining activities will not cause or contribute suspended solids to stream flow or runoff outside the permit area in excess of the requirements established by the Missouri Clean Water Commission, Department of Natural Resources, set forth in 10 CSR 20-7.015 and promulgated by the federal government set forth in the Federal Water Pollution Control Act P.L. 92-500 and all modifications to these laws and regulations;

2. Surface mining activities will not adversely affect the water quantity and quality or other environmental resources of the stream; and

3. If there will be a temporary or permanent stream channel diversion, it will comply with section (4).

(B) The area not to be disturbed shall be designated as a buffer zone, and the operator shall mark it as specified in 10 CSR 40-3.010.

Auth: sections 444.530 and 444.810, RSMo (1994). Original rule filed Oct. 12, 1979, effective Feb. 11, 1980. Amended: Filed April 14, 1980, effective Aug. 11, 1980. Amended: Filed Feb. 9, 1981, effective July 11, 1981. Amended: Filed April 2, 1986, effective July 26, 1986. Amended: Filed Sept. 15, 1988, effective Jan. 15, 1989. Amended: Filed July 3, 1990, effective Nov. 30, 1990. Amended: Filed May 15, 1992, effective Jan. 15, 1993. Amended: Filed Sept. 15, 1994, effective April 30, 1995.*

**Original authority: 444.530, RSMo (1971), amended 1983, 1990, 1993; and 444.810, RSMo (1979), amended 1983, 1993.*

10 CSR 40-3.050 Requirements for the Use of Explosives

PURPOSE: This rule brings the Land Reclamation Program into line with the Office of Surface Mining Reclamation and Enforcement rule changes on the same subject.

(1) General Requirements.

(A) Each operator shall comply with all applicable state and federal laws and regulations in the use of explosives.

(B) Blasts that use more than five (5 lbs.) pounds of explosive or blasting agent shall be conducted according to the schedule required by section (3) of this rule.

(C) Blasters.

1. Prior to the approval by the federal office of surface mining of a blaster certification program designated to regulate and document the quality of persons responsible for the removal of coal overburden by means of explosives in Missouri, all these operations shall be conducted by experienced, trained and competent persons who understand the hazards involved. By July 1, 1989 all blasting operations in Missouri shall be conducted under the direction of a certified blaster.

2. A blaster and at least one (1) other person shall be present at the firing of a blast.

3. Any person responsible for conducting blasting operations at a blasting site shall—

A. Be familiar with the blasting plan and site specific performance standards;

B. Give direction and on-the-job training to persons who are not certified and who are assigned to the blasting crew or assist in the use of explosives.

(D) Blast Design.

1. An anticipated blast design shall be submitted if blasting operations will be conducted within—

A. One thousand feet (1000′) of any building used as a dwelling, public building, school, church, community or institutional building outside the permit area including those listed in paragraph (5)(D)1.; or

B. Five hundred feet (500′) of an active or abandoned underground mine.

2. The blast design may be presented either as part of a permit application or thirty (30) days before the initiation of blasting approved by the director or commission.

3. The blast design shall contain sketches of the drill patterns, delay periods and decking, and shall indicate the type and amount of explosives to be used, critical dimensions and the location and general description of structures to be protected, as well as a discussion of design factors to be used, which protect the public and meet the applicable airblast, flyrock and ground vibration standards in section (5) of this rule.

4. The blast design shall be prepared and signed by a certified blaster.

5. The director or commission may require changes to the design submitted.

(2) Use of Explosives: Preblasting Survey.

(A) At least forty (40) days before initiation of blasting, the operator shall ensure that all residents or owners of public buildings, schools, churches, community or institutional buildings, dwellings or other structures, including those listed in paragraph (5)(D)1., located within one-half (1/2) mile of the permit area are notified by certified letter how to request a preblast survey.

(B) A resident or owner of a dwelling or structure within one-half (1/2) mile of any part of the permit area may request a preblasting survey. This request shall be made, in writing, directly to the operator or to the director or commission who shall promptly notify the operator. The operator shall ensure that a prompt preblast survey of the dwelling or structure will be conducted and that a written report of the survey is promptly prepared. The operator shall ensure that an updated survey of any additions, modifications or renovations shall be performed if requested by the resident or owner.

(C) The operator shall ensure that the condition of the dwelling or structure be determined and that any preblasting damage and other physical factors that could reasonably be affected by the blasting be documented. Structures such as pipelines, cables, transmission lines and cisterns, wells and other water systems warrant special attention; however, the assessment of these structures may be limited to surface conditions and other readily available data.